Influence of structural changes ... Z/034/61/000/009/001/002
E073/E535

In some cases electron diffraction analysis of fine particles was carried out directly at the surface of the metallographic specimens. These investigations revealed several processes in the structure, namely, precipitation of chromium carbides at the grain boundaries, precipitation of fibrous titanium carbide, precipitation of intermetallic compounds. Interesting recrystallization phenomena were observed if ageing at 800°C extended over a long period. A K-structure was detected by means of differential thermal analysis. During the first period of the precipitation hardening, when the hardness, strength and yield point increase, no change can be detected in the structure even by electron microscopes with a resolution power of about 100 Å. The main hardening effect is attributed to the precipitation of the γ'-phase - $Ni_3(Al,Ti)$. It was found difficult to determine the importance of $Ti(C,N)$ precipitate in the hardening process but no particular role is attributed to it. The hardening process continues during operation and the maximum hardness is achieved sooner or later, depending on the temperature and the titanium content. In addition to the hardness, the strength and

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yield point also increase. At an operating temperature of 650°C the steel under investigation maintains a maximum hardness, strength and yield point without any appreciable change in the elongation and contraction for over 10000 hrs Fig.14 shows the properties of this steel as a function of the annealing time at 650°C. Hardness H_B (top graph), σ, kg/mm^2 (second graph), ψ and δ_{10} in % (third graph), R, mkg/cm^2 (bottom graph), all as functions of the annealing time, hours. Each of the graphs contains information on the solution annealing ("ROZPOUSTĚCÍ ŽÍHANÍ - solution annealing; hod - hours; VODA - water). There is a slight drop in the impact strength, indicating structural changes at this temperature (650°C), i.e. primarily continuing precipitation at the grain boundaries. At higher temperatures over-ageing occurs which results in reduced resistance to strain; at 700°C a drop in hardness occurred after 100 hours. Over-heating, following by precipitation hardening without solution annealing, reduces the service life as compared to material which has not been over-heated. The results lead to the following conclusions:

Influence of structural changes ...

Structural and mechanical tests indicate that hardening of this steel is primarily due to precipitation of the γ'-phase, the composition of which is $Ni_3(Ti,Al)$. The second intermetallic phase η of the composition Ni_3Ti appears in the structure during the advanced stage of over-ageing and its occurrence does not manifest itself on the curves expressing resistance to deformation. In the early stages of precipitation, particles of fibrous carbide appear, for instance, the carbonitride Ti(C,N) which precipitates primarily in titanium enriched zones. At the grain boundaries local precipitation of the chromium carbide Cr_7C_3 will occur. Tests with over-heated specimens again confirmed the fact that high hardness of hardenable alloys does not guarantee a high resistance to creep. Over-heated specimens, which were again hardened without solution annealing, reached a hardness equal to those of specimens which had been over-heated but their creep strength was low, since, as a result of this process, the solid solution matrix was impoverished of its hardening component. Due to its high structural stability, this steel is suitable for components intended to operate at about 650°C. Acknowledgments are expressed to Engineer P. Schier,

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Influence of structural changes ...

Metallurgical Institute, ČSAV and to J. Sevčíkova who assisted with the electron microscopy work. There are 16 figures, 1 table and 26 references: 17 Soviet-bloc and 9 non-Soviet-bloc. The four latest English-language references read as follows:
A. Taylor, J.Metals 8, 1956, No.10, p.1353; A. Taylor, Ibid, 9, 1957, No.1, p.72; W. Betteridge: The Nimonic Alloys, London, 1959, p.24; H.J. Beattie and F.L. Ver Snyder, Nature 178, 1956, July, p.208.

ASSOCIATION: Státní výzkumný ústav materiálu a technologie, Praha
(State Research Institute for Materials and Technology, Prague)

SUBMITTED: November 29, 1960

35625
Z/046/62/000/001/006/007
D007/D102

18.1151

AUTHORS: Voboril, J., Engineer, and Ježek, J., Doctor of Natural Sciences, Candidate of Sciences

TITLE: The influence of some elements on structural phenomena in hardenable high-temperature NiCr-base alloys

PERIODICAL: Zváračský sborník, no. 1, 1962, 127-153

TEXT: The influence of titanium and aluminum additions on hardenable, high-temperature, NiCr-base alloys was studied to provide a better understanding of the behavior at design operating conditions of currently used materials, and to facilitate the development of new materials. Studied were the AKRN and AKNC alloys in which the Ti and Al contents were varied. Optical and electron microscopy; X-ray and electron structural analyses; differential thermal analysis; conductivity, volume and hardness measurements were employed. Results: The decomposition of oversaturated Ni-base solid solutions occurs in two stages: In the range of 100-300°C, the so-called low-temperature decomposition, characterized by the formation of a superstructure, takes place; in the range of 600-700°C, there

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The influence of some elements ...

occurs local precipitation of Cr_7C_3. In the 35Ni15Cr alloy, fibrous carbonitride Ti(NC) precipitates at 700-750°C. At higher temperatures, precipitation of the cubic γ' phase Ni_3Al or $Ni_3(AlTi)$, and of the hexagonal phase with the stoichiometric composition Ni_3Ti was found. The precipitation of these phases causes the hardening of these alloys. Depending on the Al content, the γ' phase may develop in either globular or cubic shape. Discontinuous precipitation was observed in 35Ni15Cr and 74Ni20Cr4Ti alloys. Under certain conditions the phase precipitates in a lamellar form on the grain boundaries. This anomaly is referred to as the matrix recrystallization. Its formation is strongly influenced by higher annealing temperatures and prolonged holding at these temperatures. More complicated conditions were found in alloys with lower (36%) Ni and higher (4%) Al contents. For the first time the presence of the sigma phase was proved in this alloy type. This finding is of importance for future development of new alloys which will have to be so designed as to avoid the sigma-phase formation especially by limiting the Al contents. Also, a so far unknown phase was observed. It was designated the N. phase and its preliminary analysis was performed. There are 37 figures and 1 table. (Technical editor: Doctor A. Zapletálek, VÚZ Bratislava)

ASSOCIATION: SVUMT, Prague
Card 2/2

G/014/62/000/004/005/006
D030/D109

AUTHORS: Vobořil, J., Engineer, and Ježek, J., Doctor (Prague)

TITLE: The influence of certain elements on the structure formation during separation of high-temperature chrome-nickel alloys

PERIODICAL: Schweisstechnik, no. 4, 1962, 186

TEXT: Modern long-life, high-temperature alloys contain small additions of titanium and aluminum besides a high content of nickel, chromium, and, if necessary, cobalt and iron. Other elements frequently used, such as W, Mo, Zr, Mn, Si, B, C, may influence the formation of various phases, in particular the aging processes.

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VOBORIL, J., inz., RNDr.; JEZEK, J., C.Sc.

Effect of some elements on structural phenomena in hardenable high temperature NiCr alloys. Zvar sbor 11 no.1:127-153 '62.

1. Statni vyzkumny ustav materialu a technologie, Praha.

ACCESSION NR: AP3011676 G/0029/63/000/010/0606/0614

AUTHOR: Jezek, Jaroslav and Voboril, Josef

TITLE: Effect of some additions on structural changes in Ni-Cr- base age-hardened high-temperature alloys

SOURCE: Neue Hutte, no. 10, 1963, 606-614

TOPIC TAGS: Ni-Cr alloy, age-hardened alloy, high-temperature alloy, Nimonic AKRN, AKNC, alloy structure, solution annealing, precipitation annealing

ABSTRACT: High-temperature alloys contain in addition to large parts of nickel and chrome or iron and cobalt also smaller amounts of elements greatly affecting their structure, primarily titanium and aluminum, but also B, C, Si, Mn, Zr, Mo and W. Base material for our examinations was the steel AKRN, which differs from alloys of the Nimonic type in that part of the chrome and nickel is replaced by iron and wolfram. These substitutions have no significant effect on structure or quality. Table 1 gives the composition of the alloys examined. For a temporary estimate of all possible phases it can thus be

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ACCESSION NR: AP3011676

expected that structural changes in the alloys examined will be analog. This means that in addition to the basic solid solution γ there may also be present the phase γ' of the composition Ni_3Al; this phase dissolves titantium. The mobility of atoms affecting the structural stability depends on a high melting point of the alloy. The elements of the transitional group Cr, Fe, Co, Ni are the main components of the base mass; of these, nickel with a surface-centered grid is most important. The examined alloys fall into two groups: those having an AKRN base with only the titanium and aluminum contents changed, and those based on AKNC (Nimonic 80). Fig. 1 shows all examined alloys. Structural changes were examined by metal and electron-microscopy, X-ray and electron-structure analysis, and thermic analysis after the samples had been annealed in solution at 1,050, 1,150, 1,200, and 1,300°C and quenched in water; they were hardened at 600,650, 700, 750, 800, and 850°C for from 1 to 2,000 hours (in some cases to 5,000 hours). Metallographic samples were pre-polished with emery paper, polished with alumina 1 or 2, in some cases electrolytically in 35%-alcoholic HNO_3 solution. Cauterization was either electrolytic (10% chromic

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ACCESSION NR: AP3011676

acid) or chemical (92% HCL, 3% HNO_3, 5% H_2SO_4), the latter with better results. If an oxide film appears it can be removed with 5% hydrochloric acid or, in case of high titanium content, with a 1 : 1 : 1 solution of nitric acid, hydrofluoric acid and water. The collodion extract impression was used with the electron microscope. Some phases were identified by X-ray structure analysis, using monochromatic rays CrKd, especially on precipitation obtained by electrolytic isolation. Electron diffraction of the extract impression was used for analyzing very fine precipitation; in extremely fine cases this analysis was performed on the surface of the sample. Results of the examination of these agehardenable high-temperature materials, type 35Ni-15Cr and Nimonic 80, indicate that the hardening of these materials is connected with a precipitation of the γ' phase ($Ni_3(Al,Ti)$) and the η phase (Ni_3Ti). Fibrous titanium carbides appear during the early stage of the precipitation in the structure of the 35Ni-15Cr materials. A local precipitation of chrome carbide occurs at the grain boundaries. Raising the solution temperature above the dissolving limit of the hardening phases causes an increase of titanium in the solution and thereby a much earlier precipitation of titanium-rich phases. In higher stages of the precipitation annealing recrystallization occurs, resulting in a laminar mixture of two

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ACCESSION NR: AP3011676

balanced phases γ and η. In addition to the hardening phases, the phases NiAl, sigma, and the heretofore unknown phase N (on which a structure analysis was performed) were observed in alloys with a high aluminum content. Depending on the aluminum content of the alloy, particles of the γ' phase may be globular or cubic. The examinations were conducted by the Government Research Institute for Material and Technology, Prague, to study the behavior of known materials under plant conditions and to determines further development of similar materials. Orig. art. has: 17 figures and 3 tables.

ASSOCIATION: none

SUBMITTED: 00 DATE ACQ: 04Nov63 ENCL: 02

SUB CODE: MA, ML NO REF SOV: 004 OTHER: 018

Card 4/6

JEZEK, Jaroslav, RNDr., C.Sc.; VOBORIL, Josef, inz.

Effect of the residual austenite transformation and vanadium carbide precipitation on the development of the high-speed steel secondary hardness. Hut listy 18 no.3:196-199 Mr '63.

1. Hutnicky ustav, Ceskoslovenska akademie ved, Praha (for Jezek).
2. Statni vyzkumny ustav materialu a technologie, Praha (for Voboril).

Z/0034/64/000/002/0147/0147

ACCESSION NR: AP4012492

AUTHOR: Pluhar, J. (Engineer, Doctor); Svoboda, M. (Engineer); Voboril, J. (Engineer)

TITLE: Method of Creating Surface Layers on Articles Made of Austenitic Steel and Alloys

SOURCE: Hutnicke listy, no. 2, 1964, 147

TOPIC TAGS: Surface Hardening of Steel, austenitic steel, steel alloy

ABSTRACT: The problem of a simple and technically and economically feasible method of creating surfaces of special properties on objects made of austenitic steel and alloys, especially manganese alloys, which would have a composition such that the removal of certain elements determining the austenitic structure would bring about a conversion of the austenite to another phase, has been solved by a discovery. According to the discovery, in order to create a hard wear-resistant surface of steel or alloy, an element, or elements accelerating the diffusion of carbon or other austenite-formed elements can be used, after which, the articles are kept for from one to 20 hours at temperatures from 800 to

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ACCESSION NR: AP4012492

1,200°C in a medium which combines one or more austenite-formed elements. The rapid diffusion of carbon as a result of the higher temperature from the surface of the part, which combines with the surrounding medium, which includes the compounds that are combined with it, such as ferr oxygen, creates a sufficiently deep surface grade with high surface hardness on the surface of the part.

ASSOCIATION: None

SUBMITTED: 120ct59 DATE ACQ: 19Feb64 ENCL: 00

SUB CODE: ML NO REF SOV: 000 OTHER: 000

Card 2/2

ACCESSION NR: AP4034556 Z/0065/64/000/002/0153/0168

AUTHOR: Pech, Radovan (Pekh, Radovan); Voboril, Josef (Voborzhil, Yosef)

TITLE: Contribution to the relation proposed by Larson and Miller for the extrapolation of lengthy tests

SOURCE: Kovove materialy, no. 2, 1964, 153-168

TOPIC TAGS: Larson-Miller relation, rupture, deformation, creep resistance, creep limit, POLDI AKNC alloy, gamma phase, fatigue

ABSTRACT: The relation $T(C + \log 1) = \text{const}$, proposed by Larson and Miller for extrapolating lengthy tests presupposes that material subjected to a certain stress always attains the same state at the moment of rupture or a certain degree of deformation due to temperature and time. Primarily for reasons of time, lengthy tests cannot be prolonged for the life of installations in which fireproof materials are used: about 11.5 years of continuous operation in the case of energy installations, for example. Lengthy tests to

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ACCESSION NR: AP4034556

find the limit of resistance to creep or the creep limit must be so conducted as to permit extrapolation from the results of shorter tests. the article discusses several extrapolation methods "which in the opinion of various authors offer more or less precise results". All the studies concerning this problem have been aimed solely at comparing the experimentally measured values with those extrpolated, "which is no direct proof". The work of the author's institute on the effect of exchange heat and stress on the creep resistance of POLDI AKNC alloy necessitated a more thorough analysis of the structural changes under the experimental conditions, especially constant ones, as a basis for comparison with the changes under variable conditions. The paper confines itself to a study of the structural changes recorded in the basic set of long-lasting tests of the POLDI AKNC alloy and the relation between its structure and the Larson-Miller parameter. Samples from the same alloy were also roasted at high temperatures without stress. The main changes in 8/20 Ni-Cr-Al-Ti "during operation" are in the number and size of the precipitates of phase gamma' -Ni_3 (Al, Ti), which were determined by quantitative structural analysis. The different speed of formation of gamma' phase precipitates

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ACCESSION NR: AP4034556

cannot be inferred from a comparison of this analysis of stressed and unstressed samples. In the light of the results, the Larson-Miller relation appears realistic (attainment of the same state at the moment of rupture at each level of experimental stress). This offers hope for evaluating the fatigue of the material as to creep resistance on the basis of its structure. Such experimental material has not heretofore been available. In practice the problem of evaluating fatigue will probably be still more complicated. There are frequent cases where a part is not strained in certain time intervals by stress, but only by heat, so that the particles grow without creep damage to the material. Orig. art. has: 4 tables, 5 graphs and 33 photos of structures.

ustav

ASSOCIATION: Statni vyzkumny/materialu a technologie, Prague (State Research Institute for Material and Technolgy)

SUBMITTED: 31Aug63 DATE ACQ: 11May64 ENCL: 00

SUB CODE: MM NO REF SOV: 001 OTHER: 013

Card 3/3

L 14022-65 EWP(m)/EWP(w)/EWA(d)/EWP(v)/EWP(t)/EWP(k)/EWP(b) Pf-4 ASD(m)-3
JD/EM Z/0065/64/000/004/0364/0383
ACCESSION NR: AP4044395 B

AUTHOR: Pech, Radovan (Pekh, Radovan); Voboril Josef (Voborzhil, Yosef)

TITLE: The effect of nonstationary testing conditions on the creep strength of the Poldi AKNC nickel-chromium alloy

SOURCE: Kovove materialy, no. 4, 1964, 364-383

TOPIC TAGS: heat resistant nickel alloy, nickel chromium alloy, Poldi AKNC alloy, alloy creep strength

ABSTRACT: Poldi AKNC alloy (0.08% C, 74.98% Ni, 18.85% Cr, 2.45% Co, 2.54% Ti, 1.25% Al, 0.23% Fe), used for some gas-turbine parts, was subjected to stress-rupture tests under nonstationary conditions of temperature and stress. Four temperature and stress cycles, which simulate the cycles in a turbine, were used with temperature amplitudes of 25C between 700 and 775C and a stress amplitude of 4 kp/mm^2 in the 18—30 kp/mm^2 range. The results showed that temperature changes constitute the primary factor affecting rupture life. Under the test conditions used, the rupture life can drop to 60% of the

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L 11022-65
ACCESSION NR: AP4044395

value obtained under stationary temperature conditions. If, in addition to changing the temperature, the stress is changed, the rupture life can drop to 40% of the original. The degree of dispersion of $Ni_3(Al,Ti)$ precipitate has a considerable effect on the heat resistance of the alloy; with a fine dispersion of the precipitate, the alloy has better heat resistance. Orig. art. has: 12 figures and 7 tables.

ASSOCIATION: Statni vyzkumny ustav materialu a technologie, Prague (State Research Institute of Materials and Technology)

SUBMITTED: 15Nov63 ENCL: 00 SUB CODE: MM, AS

NO REF SOV: 004 OTHER: 009 ATD PRESS: 3133

Card 2/2

L 21350-66 T/EWP(t) IJP(c) JD/HW

ACC NR: AP5016667 SOURCE CODE: CZ/0065/65/000/003/0257/0272

AUTHOR: Voboril, Josef—Voborzhil, Yosef; Pech, Radovan—Pekh, Radovan; Vodsedslek, Josef—Vodsedyalek, Yosef

ORG: State Research Institute of Materials and Technology, Prague (Statni vyzkumny ustav materialu a technologie)

TITLE: Relations between precipitation processes and properties of creep-resistant Ni-Cr base alloys

SOURCE: Kovove materialy, no. 3, 1965, 257-272

TOPIC TAGS: nichrome alloy, metal property, phase precipitation, metal stress, temperature effect, rupture strength, phase transformation, creep, creep resistance

ABSTRACT: Principal structural constituents in Ni-Cr alloys (phases γ', η, carbides, σ, and others and conditions of their occurence are described. On the basis of the authors' experiments and certain data from the literature, it is possible to draw some general conclusions concerning the precipitation of different phases in Ni alloys. The Ni-Cr alloys work always under conditions where the precipitable γ-phase has already been precipitated. The best properties of the alloy are attained at a certain size of the γ-phase particles and the test conditions (stress, temperature, and time of rupture). The TiC is the most stable carbide occuring in the Ni-Alloy. It is followed by (in the order of decreasing stability): M_6C, $M_{23}C_6$, and M_7C_3. The

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L 21350-66

ACC NR: AP5016667

η-phase forms either directly from the solid solution or by transformation from the γ'-phase. In alloys containing Mo, W, Fe, or Co with high contents of Al and Ti, σ-phase can begin to form, especially after long-time service. The range and conditions of the occurence of the σ-phase may be determined by calculations. Orig. art. has: 17 figures and 2 tables. [Based on authors' abstract.] [NT]

SUB CODE: 11/ SUBM DATE: 06Jan65/ OTH REF: 024/

Card 2/2

L 31947-66 EWA(d)/EWP(t)/ETI IJP(c) JD
ACC NR: AP6018258 (N) SOURCE CODE: CZ/0065/65/000/006/0526/0548

28
26
8

AUTHOR: Pluhar, Jaroslav; Voboril, Josef; Macek, Karel

ORG: Department of Science of Materials, CVUT (Katedra nauky o materialech CVUT); State Research Institute of Materials and Technology, Prague (Statni Vyzkumny ustav materialie o technologie)

TITLE: Structural stability of austenitic manganese steels 16

SOURCE: Kovove materialy, no. 6, 1965, 526-548

TOPIC TAGS: metal heat treatment, austenitic steel, manganese steel, carbide phase

ABSTRACT: Based on results of tests the authors offer the following conclusions. The austenitic structure in modified Mn steels of the type investigated is less stable than in steels of the classical type. The austenite in manganese steels containing more than 8% Mn remains stable up to -100C. It also remains stable after plastic deformation and subsequent freezing over the entire temperature range including deformation up to 30C and freezing down to -50C. Aside from phases forming the decomposition product of austenite during isothermal annealing of classical manganese, ferritic and bainitic reactions were found to take place. The regions and boundaries of all phases were established. Classical and modified steels show two hardness peaks as a function of temperature and isothermal annealing. The second

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L 31947-66

ACC NR: AP6018258

peak has not been reported elsewhere. The region of the first hardness peak is characterized by the precipitation of the carbide phase and the formation of pearlite or bainite. The region of high temperature maximum is produced by martensite formed in specimens cooled down from the annealing temperature. The process taking place during continuous slow heating can be equated with changes under isothermal conditions. Thermal hysteresis increases with the rate of heating and with a lower reaction temperature. The amount of transformed austenite is smaller with continuous heating. Changes appearing in the solid solution during the initial stages of continuous heating can be related to the formation of atmospheres of interstitial atoms on packing defects. This process precedes the precipitation of carbides. The article was reviewed by Frantisek Poboril, Research Institute of Ferrous Metallurgy, Prague. Orig. art. has: 21 figures and 4 tables. [GC]

SUB CODE: 11, 13/ SUBM DATE: 23May65/ ORIG REF: 005/ OTH REF: 011

Card 2/2 LC

JEZEK, Jaroslav, RNDr., C.Sc.; VOBORIL, Josef, inz.

Methods of making thin foils for examining the structure of metals by the electron microscope. Hut listy 17 no.10:720-724 O '62.

1. Hutnicky ustav, Ceskoslovenska akademie ved, Praha (for Jezek). 2. Statni vyzkumny ustav materialu a technologie, Praha (for Voboril).

VOBORIL, Jan, inz.

For better economy and safety in steam boiler operation.
Normalizace 12 no. 2 s. 40-43 F'64

1. Ustav technickeho dozoru, Praha.

VOBORIL, J.

Friction welding.

p. 681 (Strojirenstvi. Vol. 7, no. 9, Sept. 1957. Praha, Czechoslovakia)

Monthly Index of East European Accessions (EEAI) LC. Vol. 7, no. 2,
February 1958

VOBORIL, F.

An improvement suggestion solved a state-wide problem. p. 371 (MECHANISACE ZEMEDELSTVI, Vol. 7, No. 16, Aug 1957, Praha, Czechoslovakia)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, No. 12, Dec 1957. Uncl.

VOBORIL, J.

Distr: 4E2c/4E2b(e)

The influence of structure on some properties of high speed steels. Josef Vobořil, Jaroslav Ježek, and Jiří Průcha. *Materiálový Sborník* 1958, 193–216(Pub. 1959).—The structure and properties of 18-4-1 (W–Cr–V), 9-4-2, and 11-4-4 high-speed steels are discussed. Thermal treatment, metallography, and the so-called 2nd hardness are described. In order to study pptn. phenomena, x-ray structure analyses of the sepd. carbides have been made and investigated by electron microscopy. The quality of tool steels is mainly influenced by the structure of the steel and its heat-treatment. The formation of coarse carbide grains with nonhomogenous distribution must be avoided, as it reduces considerably the toughness of the steel. The secondary hardness is caused by the decay of residual austenite and the sepn. of the fibrous ppt. of VC.

F. H. Lieber

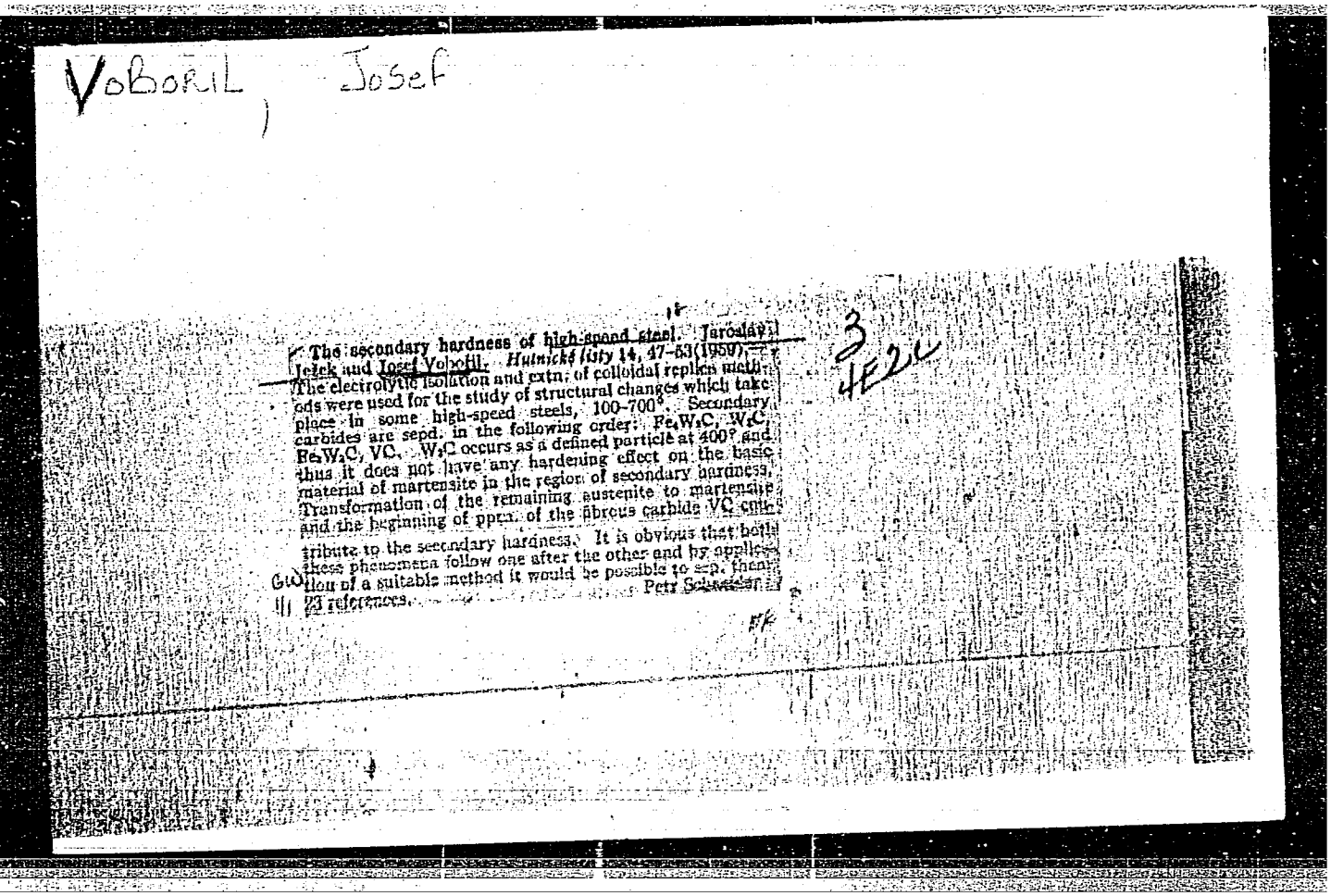
4/2

VOBORIL, J.; MANDAUS, J.

Friction welding. p. 33

STROJIRENSTVI (Ministerstvo tezkeho strojirenstvi, Ministerstvo presneho strojirenstvi a Ministerstvo automobiloveho prumyslu a zemedelskych stroju)
Praha, Czechoslavakia
Vol. 9, no. 1, Jan. 1959

Monthly list of East European Accessions (EEAI), LC, Vol. 8, no. 7
July 1959
Uncl.



VOBORIL, Josef

3
4E2c

The secondary hardness of high-speed steel. Jaroslav Ježek and Josef Vobořil. *Hutnické listy* 14, 47–53(1959). The electrolytic isolation and extn. of colloidal replica methods were used for the study of structural changes which take place in some high-speed steels, 100–700°. Secondary carbides are sepd. in the following order: Fe_4W_2C, W_2C, Fe_3W_3C, VC. W_2C occurs as a defined particle at 400° and thus it does not have any hardening effect on the basic material of martensite in the region of secondary hardness. Transformation of the remaining austenite to martensite and the beginning of ppn. of the fibrous carbide VC contribute to the secondary hardness. It is obvious that both these phenomena follow one after the other and by application of a suitable method it would be possible to sep. them. 23 references.

Petr Schneider

IMRIS, Pavel; LANDSPERSKY, Hanus; VOBORIL, Miroslav

Use of the sedimentation analysis in examining the distribution of UO_2 particles of U_3O_8 calcinated under different conditions. Jaderna energie 10 no. 2:53 F '64.

1. Ustav jaderneho vyzkumu, Ceskoslovenska akademie ved, Rez.

L 37177-66 EWP(e)/T/EWP(t)/ETI IJP(c) ES/WW/AT/WH/JD/JG

ACC NR: AP6027871 SOURCE CODE: CZ/0038/66/000/003/0099/0099

AUTHOR: Jakes, Dusan; Voboril, Miroslav

ORG: Nuclear Research Institute, CSAV, Rez (Ustav jaderneho vyzkumu CSAV)

TITLE: Some properties of the cermet UC - U

SOURCE: Jaderna energie, no. 3, 1966, 99

TOPIC TAGS: cermet, grain growth, crystal structure

ABSTRACT: The microstructure of UC - C cermet (50 molar % UC) was studied in the work described by the paper. The dihedral angle $\psi = 50.7 \pm 2°$ was found. Heating samples 24 days at 750°C had little influence on the grain growth of UC, and the grain boundaries became stronger. NRI Report No. 1356/65. [Based on authors' Eng. abst.] [JPRS: 36,845]

SUB CODE: 11, 20 / SUBM DATE: none

UDC: 621.039.542.33

Card 1/1 MLP

VOBORIL, K.

"Safety for Flyers", P. 11, (CESKOSLOVENSKA ARMADA, Vol. 3, No. 20, Sept. 1954, Praha, Czechoslovakia)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 3, No. 12, Dec. 1954, Uncl.

VOBORIL, Petr, promovany ekonom

Descriptive tables of workplace operations in production with automatic processes. Prace mzda 9 no.11:499-502 N '61.

1. Pracovnik n.p. Spolana, Neratovice.

CZECHOSLOVAKIA/Chemical Technology. Chemical Products and Their Application. Ceramics. Glass. Binding Materials. Concrete H-13

Abs Jour : Ref Zhur - Khim., No 24, 1958, No 82424

Author : Vobornik K.

Inst :

Title : Conditions of the Most Successful Decolorization of Sodium Cut-Glass

Orig Pub : Sklar a keramik, 1958, 8, No 3, 74-75

Abstract : Of the basic conditions involved in the manufacture of colorless cut-glass (C), theselection of raw materials and of refractories with the lowest Fe content (maximum Fe_2O_3 allowable in C is 0.09%) are the most important ones. A thorough classification of raw materials, of broken glass, a thorough mixing of the glass mass in a crucible, using a mixing paddle made of stainless steel, are the main variables that control quality of colorless C. Properties of the oxides of Fe^2 and Fe^3 in the glass were investigated. The most detrimental oxide is Fe^3 of the lowest coordination

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Abs Jour : Ref Zhur - Khim., No 24, 1958, No 82424

degree, in which Fe ion is surrounded by 4 oxygen ions, and which imparts a grayish-yellow hue to C. To improve decolorization of C, high concentrations of the alkali (< 18-19%) should be avoided. The glass mass is kept in a furnace in a weakly oxidizing atmosphere at ≥ 1340° until the end of the melting period. The decolorizing agents can be divided into chemically-active and physically-active ones. To the first group belong: nitrate slats ($NaNO_3$), As_2O_3, Sb_2O_3, Ce_2O_3 and Se. To the second group belong: NiO, CoO, NdO and others -- all those that cause shifting of the color of C into the opposite direction of component color. As the result of this hue becomes less pronounced, however, transparancy of C becomes porrer. Therefore, it is preferred to employ chemically-active decolorizing agents, and in particular Na_2Se or ZnSe, whose dosage should comprise 1-2 gr of Se per 100 kg C (when Fe content is < 0.04%) when

Abs Jour : Ref Zhur - Khim., No 24, 1958, No 82424

used in combination with small quantities of CoO. Other conditions employed in the manufacture of colorless C (Addition of either Se or selenides) are also presented.
-- S. Glebov

VOBORNIK, K.; DVORAK, J.

Aluminum oxide in the opal glass hardened by addition of fluorides.
Silikaty 6 no.3:273-280 '62.

1. Statni vyzkumny ustav sklarsky, Hradec Kralova.

Z/013/62/000/012/001/001
D006/D102

AUTHOR: Vobornik, Karel, Engineer

TITLE: Light diffusing glasses

PERIODICAL: Sklář a keramik, no. 12, 1962, 343-346

TEXT: This review article deals with the fundamental problems of light diffusing glasses to provide knowledge of their basic light characteristics which are essential for their use in illuminating engineering. The following aspects are covered: Definition and classification; physical and chemical effects influencing the quality of light diffusing glasses; diffusing capacity and methods of its quantitative determination. There are 2 figures.

ASSOCIATION: Státní výzkumný ústav sklářský (State Glass Research Institute), Hradec Kralové

Card 1/1

VOBORNIK, Karel, ing.

Twenty-fifth Congress of Industrial Chemistry in Warsaw. Sklar a keramik 14 [i.e. 15] no.1:24-25 Ja '65.

TONDL, L.; NEKOLA, Y.; VOBORNIK, B.

Role of science in modern society. Vest.AN SSSR 35 no.8:56-60 Ag '65. (MIRA 18:8)

1. Chekhoslovatskaya Akademiya nauk.

VOBORNIK, Josef

"Polyamide fibers" by J.Chalupsky, J.Blazek. Reviewed by Josef Vobornik. Chem prum 13 no.10:544 O '63.

1. Ministerstvo chemickeho prumyslu.

VOBORNIK, Miroslav, dr, asistent

Contribution to the diagnosis and therapy of rhinogenic orbital complications. Med. arh. 15 no.4:49-56 Jl-Ag '61.

1. Otorinolaringoloska klinika Medicinskog fakulteta u Sarajevu (Sef: prof. dr. Zarko Prastalo).
(ORBIT dis) (PARANASAL SINUSES dis)

ZOUBEK,R.; VOBOŘNIKOVA,F.

Our more recent experiences with the treatment of excentric fixation. Cesk. oftal. 21 no.3:266-270 My '65

1. Ocni klinika lekarske fakulty Karlovy University v Hradci Kralove (prednosta: prof. dr. M. Klima, DrSc).

VOBOROVA, A.

Evaluation of the treatment of granuloma annulare. Cesk. derm. 38 no.3:213-216 Je '63.

1. II dermato-venerologicka klinika fakulty vseobecneho lekarstvi KU v Praze, prednosta prof. dr. J. Obrtel, DrSc.
(GRANULOMA) (CHLOROQUINE)

VOBOROVA,A.; CHMELOVA,M.

Phytogenic photodermatitis. Cesk. derm. 40 no.1:43-45 Ja '65

1. II. dermato-venerologicka klinika fakulty vseobecneho lekarstvi Karlovy University v Praze (prednosta: prof. dr. J. Obrtel, DrSc.).

CZECHOSLOVAKIA

M. ZAPLETALEK, D. VOBORSKA, E. BARBORAKOVA and S. KOMENDA, Psychiatry Clinic of Medical Faculty of Palacky University, and Institute of Medical Physics (Ustav lekarske fyziky) Medical Faculty Palacky University, Olomouc.

"Effect of Phenmetrazine and Methylphenidate on the 'Neurotic Exhaustion Syndrome'."

Prague, Activitas Nervosa Superior, Vol 5, No 2, May 63; pp 221-223.

Abstract : Study of performance on simple intellectual task of 24 neurotic patients: 50 mg. phenmetrazine was significantly superior to either 20 mg. methylphenidate or placebo in every respect. The second drug was slightly superior to placebo but not to statistical significance. Table; 8 Western and 8 Czech references.

1/1

ZAPLETALEK, M.; HAJCMAN, L.; LISONKOVA, D.; VOBORSKA, D.; KOMENDA, S.

Some aspects of the treatment of depressive conditions with tofranil and nozinan. Activ. nerv. sup. 3 no.2:232-233 '61.

1. Psychiatricka klinika PU, Ustav lekarske fyziky PU v Olomouci.

(DEPRESSION ther) (PSYCHOPHARMACOLOGY)

ZAPLETALEK, M.; VOBORSKA, D.; BARBORAKOVA, E.; KCMENDA, S.

Effect of phenmetrazine and ritalin on the neurotic fatigue syndrome. Activ. nerv. sup. 5 no.2:221-223 My '63.

1. Psychiatricka klinika lekarske fakulty PU, Olomouc - Ustav lekarske fyziky lekarske fakulty PU, Olomouc.
(PHENMETRAZINE) (METHYLPHENIDATE)
(NEUROSES) (FATIGUE)

VOBORSKY, J.

CZECHOSLOVAKIA / Pharmacology, Toxicology. Narcotics and Hypnotics. U-2

Abs Jour : Ref. Zh.-Biol., No 2, 1958, No 7925

Author : Hadlik, J., Hribal, R., Voborsky, J.

Inst :

Title : Alterations in the Higher Nervous Activity Following Imbibition of a Small Quantity of Alcohol by Chronic Alcoholics.

Orig Pub : Ceskosl. psychiatr., 1956, 52, No 1, 9-14

Abstract : Small quantities of alcohol (50-100 ml of a 35-40% solution) given to chronic alcoholics resulted in an accelarated development of conditioned reflexes and in shortening of the latent period. But an interference with the reciprocity between both of the signal systems was noted.

Card : 1/2

VOBORSKY, J.

Work culture and neuroticism in our industrial plants. Acta nerv. sup. (Praha) 6 no.4:403 '64.

1. Psychologicka laborator Novahut Klementa Gottwalda, Ostrava.

VOBORSKY, Jiri, promovany psycholog

Application of psychological and physiological information in th design and maintenance of electric equipment. Pt.3. Elektrotechnik 20 no.1:4-7 Ja '65.

1. Nova hut Klementa Gottwalda National Enterprise, Kunčice.

PITUCHA, Radomir; VOBORSKY, Jiri, promovany psycholog

Conversation of work brigade members with a psychologist.
Elektrotechnik 18 no.5:150-151 My '63.

1. Nova hut Klementa Gottwalda, Ostrava - Kuncice.

VOHORSKY, Jiri, promovany psycholog

Application of psychological and physiological knowledge in the construction and maintenance of electric equipment. Pt. 1. Elektrotechnik 19 no. 6:161-162 Je '64.

1. Nova hut Klementa Gottwalda, Kuncice.

VOBORSKY, Jiri, asistent psychiatricke kliniky.

Preliminary communication on the results of the physiological examination of the higher nervous system in retarded children. Cesk. pediat. 10 no.5:347-351 June 55.

1. Z Palackeho university v Olomouci. Prednosta prof. Dr. Jos. Hadlik.

(CENTRAL NERVOUS SYSTEM, in various diseases
ment. retardation, higher funct. test in child.)
(REFLEX, CONDITIONED
in retarded child., higher funct. test)
(MENTAL DEFICIENCY
retarded child., conditioned reflex in higher funct. test)

VOBORSKY, Jiri, promovany psycholog

Application of psychological and physiological information in the design and maintenance of electric equipment. Pt. 2. Elektrotechnik 19 no.8:217-218 Ag '64.

1. Nova hut Klementa Gottwalda, Kuncice.

SAUER, Zdenek; VOBORSKY, Jan; LEJSEK, Tomas

Malt brittleness and its uniformity. Kvasny prum 9 no.1:3-9 Ja '63.

1. VUPS, Praha.

SAUER, Zdenek; VOBORSKY, Jan

Kinetics of malt drying process. Kvasny prum 9 no.5: 127-130 My '63.

1. Vyzkumny ustav pivovarsky a sladarsky, Praha.

VCBORSKY, Jan, inz.

Production of malt by the continuous method as the development trend in malting technology. Przem ferment i rol 8 no.2:49-53 F '65.

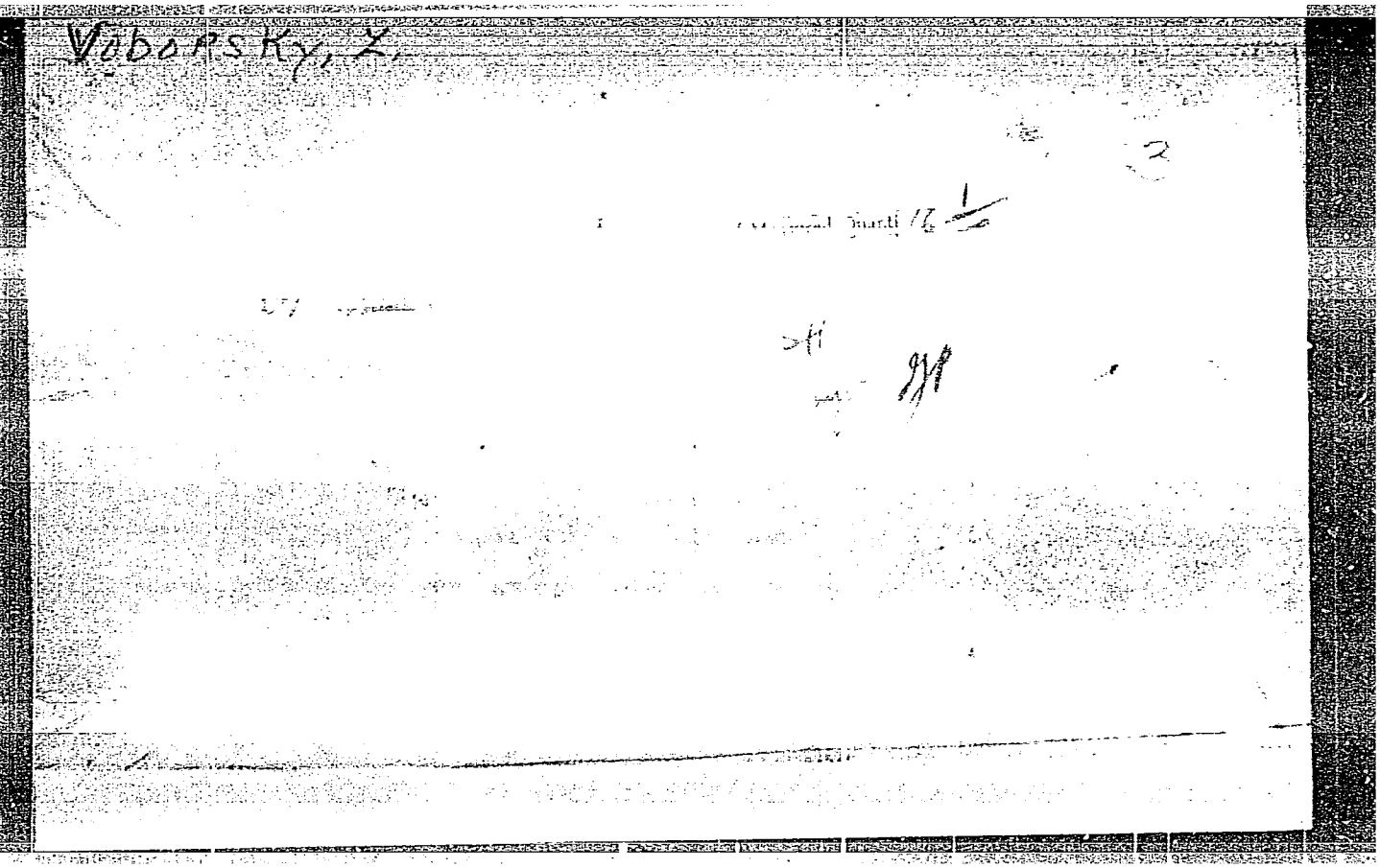
1. Industrial Brewing and Malting Research Institute, Prague.

Voborsky, Z.

Voborsky, Z. Transmission by pneumatic tube of measured quantites. p. 27.

Vol. 7, no. 1, Jan. 1957
STROJIRENSTVI
TECHNOLOGY
Czechoslovakia

So: East European Accessions, Vol. 6, May 1957
No. 5



VOBEUBA, K.

"A plant producing prefabricated structural elements in Sucany." p. 177.

STAVBA. (Poverenictvo stavebnictva). Bratislava, Czechoslovakia,
Vol. 6, No. 6, June 1959.

Monthly list of East European Accessions (EEAI), LC, Vol. 8, No. 8,
August 1959.
Uncla.

VOBROVNIKOV, N.I.

VOBROVNIKOV, N.I.

Municipal services of the capital during forty years of Soviet rule. (MIRA 10:1)
Gor.khoz.Mosk. 31 no.10:3-8 O '57.

1. Predsedatel' Ispolkoma Moskovskogo Soveta.
(Moscow--Municipal services)

VOBSHCHINA, S.

USSR/Cultivable Plants - Grains. A-2

Abs Jour : Ref Zhur - Biol., No 3, 1958, 10711

Author : Afanas'yeva, L.A., Kolgushkina, T., Vobshchina, S.
Inst : -
Title : The Influence of Spring Wheat Sowing Dates on the Quality of the Seed (an Experiment of the Young Naturalists of Chelyabinsk)

Orig Pub : Agrobiologiya, 1956, No 3, 182-188.

Abstract : No abstract.

Card 1/1

AFANAS'YEVA, L.A., prepodavatel'-biolog (Chelyabinsk); KOLGUSHKINA, T., yunnat (Chelyabinsk); VOBSHCHINA, S., yunnat (Chelyabinsk).

Effect of sowing time on the quality of spring wheat seeds. Agrobiologiia no.3:143-144 My-Je '56. (MLRA 9:9)
(Wheat) (Sowing)

VOCASEK, Jaroslav

Social contribution of the periodical "Sdelovaci Technika" and its development. Sdel tech 12 no.2:41 F'64

1. Garant ministerstva vseobecneho strojirenstvi pro casopis Sdelovaci technika.

VOCETKA, A.

VOCETKA, A. Socialist competition helped us to success. p. 100. Socialist commitment of the Kolovraty Machine-Tractor Station. p. 101. -MIL-. Experience from preparation of the spring wo k in the Liberec area.p. 102.

Vol. 6, no. 6, Mar. 1956
MACHANISACE ZEMEDELSTVI
AGRICULTURE
Czechoslovakia

So: East European Accession, Vol. 6, No. 5, May 1957

VOCEL, J.; POLACEK, E.; NEUGEBAUROVA, L.; SEBKOVA, J.; Technicka spoluprace: KRISTAN, M.

Concentration test in premature and young infants. Cesk. pediat. 18 no.9:774-780 S '63.

1. I detska klinika fakulty detskeho lekarstvi KU v Praze, prednosta prof. dr. J. Svejcar Ustav vyzkumu vyvoje ditete v Praze, reditel prof. dr. J. Houstek II detska klinika fakulty detskeho lekarstvi KU v Praze, prednosta prof. dr. J. Houstek Kojenecky ustav v Praze-Krci, reditel MUDr. K. Zeman.
(INFANT, PREMATURE) (KIDNEY FUNCTION TESTS)
(URINE)

MUTL, Silvestr, inz.; VOCEL, Jan, inz.

Treatment of waste waters containing mineral suspensions and oily emulsions. Vod hosp 13 no.11:439-440 '63.

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3.2500 (1080)
17.8000

S/035/61/000/010/030/034
A001/A101

AUTHOR: Vocel, M.

TITLE: Impact of rocket Lunik II on the Moon

PERIODICAL: Referativnyy zhurnal. Astronomiya i Geodeziya, no. 10, 1961, 67, abstract 10A468 ("Byul. astron. in-tov Chekhoslovakii", 1960, v. 11, no. 5, 207-213, Engl. Russian summary)

TEXT: The author considers phenomena caused by the impact of Lunik II on the Moon. The probable depth of rocket penetration into the lunar surface layer was calculated from the relations derived in artillery and experimental results (0.05-0.10 m in rocks and 3-4.4 m in dust). The penetration time in the latter case is 0.0027 sec, in the case of rocks - correspondingly less. The volume of the crater and of the matter ejected by impact is estimated to be 270 m^3, but on assumption of an explosion of the fuel remains - up to 1,200 m^3. The mean velocity of matter ejection is $\sim$ 100 m/sec, the range of ejection - up to 6,000 m. The maximum time of visibility of phenomena accompanying the impact (explosion cloud, etc) could not exceed 2-4 min. The phenomena observed would be possible only in the case, if the surface of the Moon at the impact spot were

Card 1/2

30276
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A001/A101

Impact of rocket Lunik II on the Moon

covered with a layer of powder-like substance composed of very fine particles capable to cause the observed absorption of light of the lunar surface. The comparatively long duration of the phenomena observed remains unexplained.

V. Bronshten

[Abstracter's note: Complete translation]

Card 2/2

L 3125-66 EWP(t)/EWP(k)/EWP(b)/EWA(h)/EWA(c) JD/HW

ACCESSION NR: AP5026867 CZ/0031/65/013/001/0011/0014

AUTHOR: Vocel, Milan (Engineer, Candidate of sciences)

35
B

TITLE: Problems in the forming of metals by the vibrational method 18 18

SOURCE: Strojirenska vyroba, v. 13, no. 1, 1965, 11-14

TOPIC TAGS: metal forming, vibration

ABSTRACT: The article has the purpose of acquainting the technician about the problems of vibrational forming, informing him about certain results and initiating a broader exchange of experience and information about the process, since the information in the literature disagrees regarding its advantages for production. Orig. art. has: 2 figures, 4 graphs.

ASSOCIATION: Statni vyzkumny ustav materialu a technologie, Prague (State Research Institute of Materials and Technology)

SUBMITTED: 00 ENCL: 00 SUB CODE: IE

NR REF SOV: 000 OTHER: 008 JPRS

Card 1/1

N T. 12978-66 EWT(m)/EWP(t)/EWP(k)/EWP(b)/EWA(c) JD/HW

ACC NR: AP6001083 SOURCE CODE: CZ/0031/65/013/012/0855/0858

AUTHOR: Vocel, M. (Engineer; Candidate of sciences)

ORG: none

TITLE: Explosive forming of sheets and plates

SOURCE: Strojirenska vyroba, v. 13, no. 12, 1965, 855-858

TOPIC TAGS: metal, ~~metal sheet, metal~~ plate, ~~sheet forming, plate forming~~, explosive forming, die, explosive, sheet metal/SEMTEX 1 explosive

ABSTRACT: The experience of the Czechoslovak metalworking industry has shown that dimensional accuracy is one of the greatest advantages of explosive forming. Therefore, it is frequently used as a sizing process for parts preformed by a conventional method. Such parts, after explosive sizing, require no additional sizing. Sometimes a reversed method is used, i.e., explosive forming is used as a preforming process. Generally, explosive forming is used for parts which are either too large for available forming equipment or which have an intricate shape (see Figure 1). Explosive forming is regularly applied to plate or sheet parts 0.6—14 mm thick. Dies for shallow parts, whose forming does not require very high pressures, are made from a zinc-tin alloy; those for parts formed under very high pressures are made from carbon steels. Very large dies are made of cast iron. Water tanks are made of plastic, steel, or rubber. Tanks should be rested on an elastic base which absorbs

Card 1/3

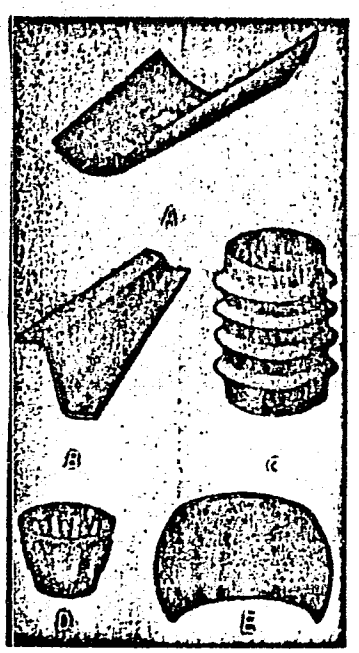

Fig. 1. Examples of explosively formed parts

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ACC NR: AP6001083

4

vibrations. A special explosive, SEMTEX 1, has been developed for explosive forming by the Synthesia Semtin plant. The explosive is water repellent, detonates in a layer 2 mm thick, and is available in foil form. No negative effects of explosive forming on the properties of formed materials were observed. The Middle Czech Machine Building Plant in Letnany and the First Five-Year Plant in Kunovice are among those using explosive forming. The Research Institute of Heavy Machine Building in Brno coordinates the research in explosive forming. Orig. art. has: 1 figure. [DV]

SUB CODE: 13/19/ SUBM DATE: none/ ORIG REF: 008/ OTH REF: 004/ SOV REF: 001/
ATD PRESS: 4179

Card 3/3

ZAZIRA, R.

Iodine content in typical Czechoslovak pelvids. Fysiat. vest. 43 no.3:157-161 Jul'65.

1. Vyzkumny ustav pro fyziatrii, balneologii a klimatologii ve Frantiskovych Laznich, (reditel: prof. dr. M. Prerovsky).

VOCETKA, A.

"Presidential Decree On Awarding State Prizes for 1954 With the Honorary Title 'Winner of the State Prize'", P. 4, (TECHNICKE NOVINY, Vol. 2, No. 10, May 1954, Praha, Czechoslovakia)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 3, No. 12, Dec. 1954, Uncl.

VOCETKA, A.

"Tractor Drivers at Kolovraty", P. 3, (TECHNICKE NOVINY, Vol. 2, No. 10, May 1954, Praha, Czechoslovakia)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 3, No. 12, Dec. 1954, Uncl.

BATKA, Michal, promovany matematik; VOCETKA, Jaroslav, promovany matematik

Technical calculation on the automatic computers Ural 1 and Ural 2.
Doprava no.10:346-347 '62.

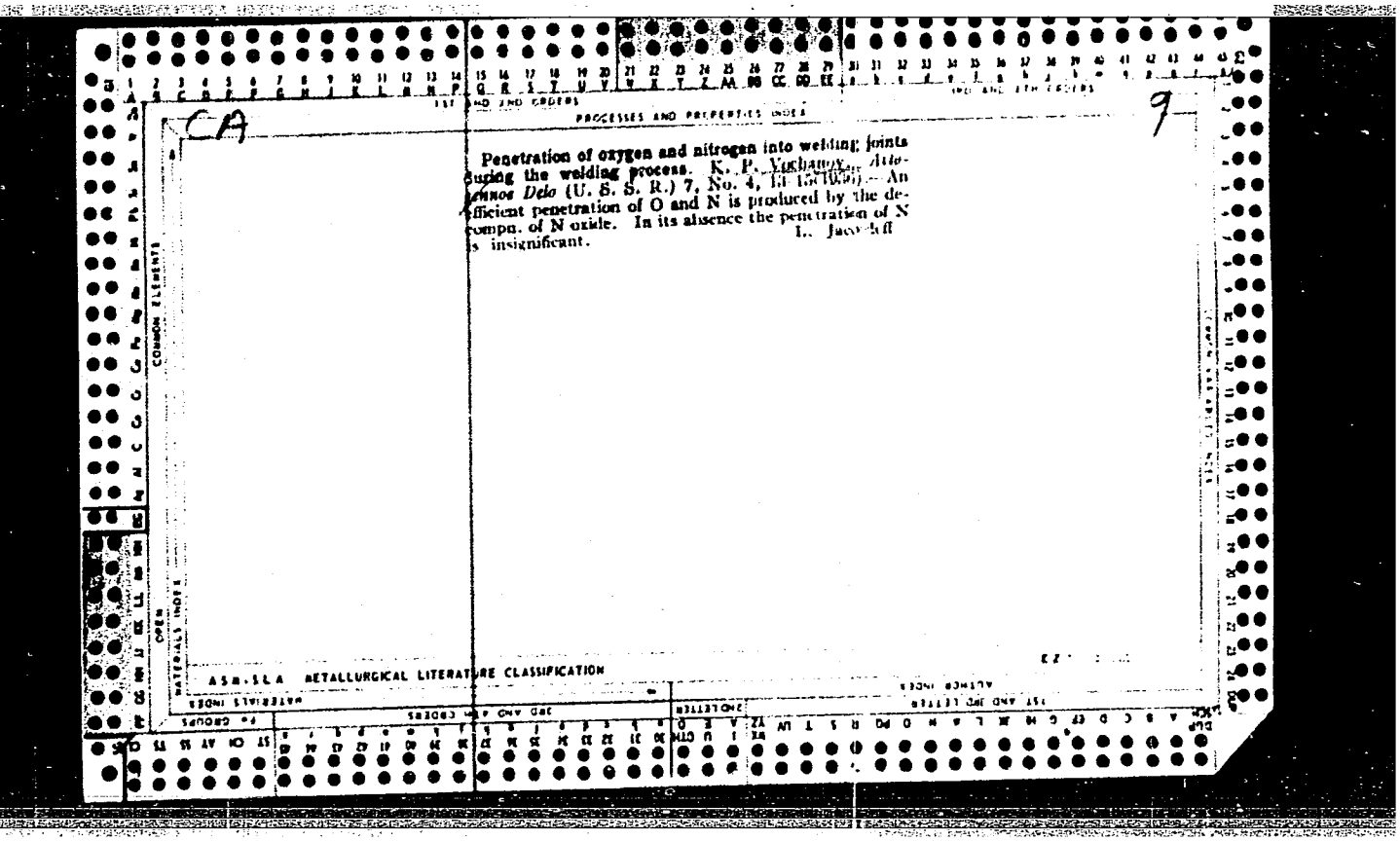
VOCETKA, Jaroslav, promovany matematik; BATHA, Michal, promovany matematik

Numeral weather forecast on automatic computers. Letecky obzor 9 no.3:73 Mr '65.

VOCETKOVA, A.; KUBICEK, M.; POSSNER, M., MUDr.

Treatment of bronchial asthma with glomectomy. Cas. lek. cesk. 104 no.17:463-466 30 Ap'65.

1. Interni oddeleni Obvodniho ustavu narodniho zdravi (vedouci: MUDr. V. Pospisil) a Chirurgicke oddeleni Obvodniho ustavu narodniho zdravi v Koline (vedouci: MUDr. M. Possner).

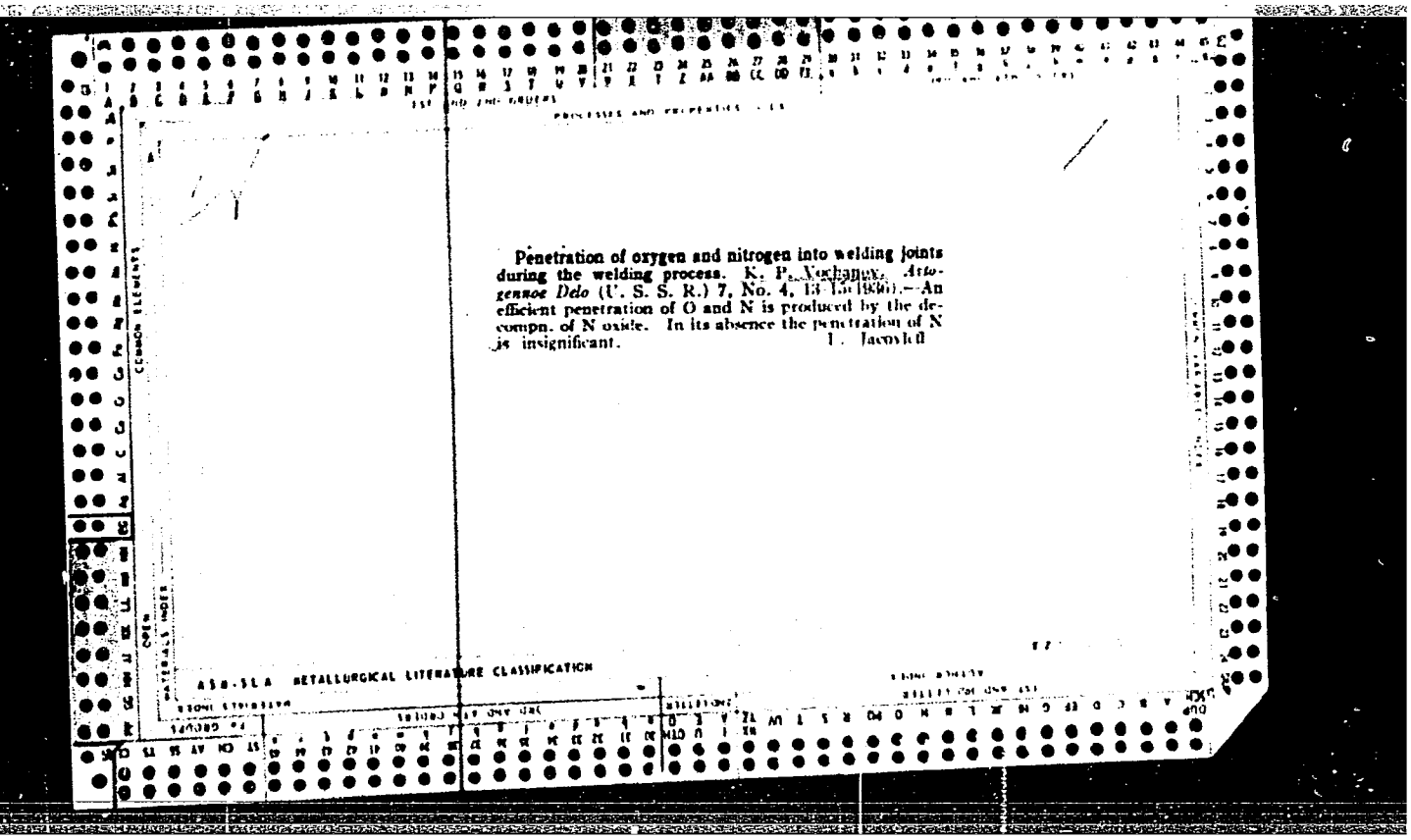


CA 9

PROCESSES AND PROPERTIES INDEX

Penetration of oxygen and nitrogen into welding joints during the welding process. K. P. Yushanov. *Avtomat. Svarka* (U. S. S. R.) 7, No. 4, [illegible] — An sufficient penetration of O and N is produced by the decompn. of N oxide. In its absence the penetration of N is insignificant. L. Jacobson

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Penetration of oxygen and nitrogen into welding joints during the welding process. K. P. Yushkevich. *Avtogennoe Delo* (U. S. S. R.) 7, No. 4, 13-15 (1936).—An efficient penetration of O and N is produced by the decompn. of N oxide. In its absence the penetration of N is insignificant. I. Jacobi

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

VOCHIN, D.

Electric illumination as one of the safety problems in automobile driving.

P. 523 (REVISTA TRANSPORTURILOR) (Bucuresti, Rumania) Vol. 4, no. 12, Dec. 1957

SO: Monthly Index of East European Accessions (EEAI) LC Vol. 7, No. 5. 1958

VOCHIN, D.

TECHNOLOGY

PERIODICAL: REVISTA TRANSPORTURILOR, Vol. 5, no. 11, 1958 Nov.

VOCHIN, D. Brakess, a safety element in automobile driving. p. 493

Monthly List of East European Accessions (EEAI). LC Vol. 8, No. 4
April 1959, Unclass

VOCHIN, D.

Rational use, maintenance, and repair of storage batteries, a problem of cost reduction. p.430

REVISTA TRANSPORTURILOR. (Asociatia Stiinfica a Inginerilor si Tehhicienilor din Rominia si Ministerul Transporturilor Rutier, Navale si Aeriene) Bucureti, Romania. Vol. 6, No. 10 Oct. 1959

Monthly List of East European Accessions (EEAI) LC Vol. 9, no. 2, Jan 1960

Uncl.

VOCHIN, D., ing.

"The Soviet motor vehicle repair" by V.A.Sadricev. Rev transport 8 no.7:327 Jl '61.

VOCHIN, D.

The microcar Zaporozhets, model 965. Rev transport 8 no.11:499-501 N '61.

(Russia—Automobile industry)

VOCHIN, D., ing.

"Construction and calculation of motorcars and tractors" by I. Rudeanu and others. Reviewed by D. Vochin. Rev transport 9 no. 3:137 Mr '62.

VOCHIN, D., ing.

"The maintenance of motorcars" by Ch. Pitulescu. Reviewed by D. Vochin. Rev. transport 10 no.3:137 Mr '63.

VOCHIN, D., ing.

On the necessity of close cooperation between motorcar construction plants, exploitation and repair enterprises. Rev transport 9 no. 6:270-272 Je '62.

VOCHIN, D., ing.

Some problems of labor protection in motor vehicle construction plants, and in repair and exploitation enterprises. Rev transport 9 no.7:304-305 Jl '62.

VOCHIN, D.

"The spark plug" by B. Popa and others. Reviewed by D. Vochin.
Rev transport 9 no. 11:508 N '62.

VOCHIN, D.

"Progress made in motorcar construction" by L. Rubel. Reviewed by D. Vochin. Rev transport 10 no.4:192 Ap 63.

VOCHIN, D.

"Maintenance of automobiles" by G. Pitulescu. Constr mas 15 no.4:342 Ap '63.

Vochoc, V.

621.3.042

4998 The 220/110 kV transformers of the CKD Stalingrad National Corporation. [illegible] and J. Stanek. *Elektrotech. Obzor*, 42 [illegible] (1953) *In Czech.*

Detailed description of the design, construction and testing of the standard 160 MVA 220 ± 9 × 3·3/110/10·4 kV transformer of the CKD works. This transformer is designed as three 1-ph. units with one unit spare and the voltage regulation is being done by a separate regulating transformer connected to the neutral end of the 220 kV winding. H. NOREL

VOCHOC, V.: Stanek, J.

"The 220/110-kv. Transformers of the Ceskomoravska-Kolben-Danek-Stalingrad National Corporation" p. 504. (ELEKTROTECHNICKY OBZOR, Vol. 42, No. 9, September 1953, Praha, Czechoslovakia)

SO: Monthly List of East European Accessions, LC, Vol. 3, No. 5, May 1954, Unclassified

VOCHOC, V.

Problems of large transformers. p. T98

Vol. 43, no. 10, Oct. 1954
ELEKTROTECHNICKY OBZOR
Praha, Czechoslovakia

Source: East European Accession List. Library of Congress
Vol. 5, No. 8, August 1956

Vochaě, V

9

621.314.214

5048. Longitudinal and cross regulation by transformers. V. Vochoč. *Elektrotech. Obzor*, 44, No. 5, 281–3 (1955) in Czech.

The principles of longitudinal and cross regulation of the voltage by transformers are briefly discussed, the regulation of active and kVAr output of two power systems connected in parallel by two tie lines being considered in more detail. The concluding section is a description of a large regulating transformer for 100 kV produced by the CKD Stalingrad Works. ELECTRICAL RESEARCH ASSOCIATION